MARINE REVIEW.

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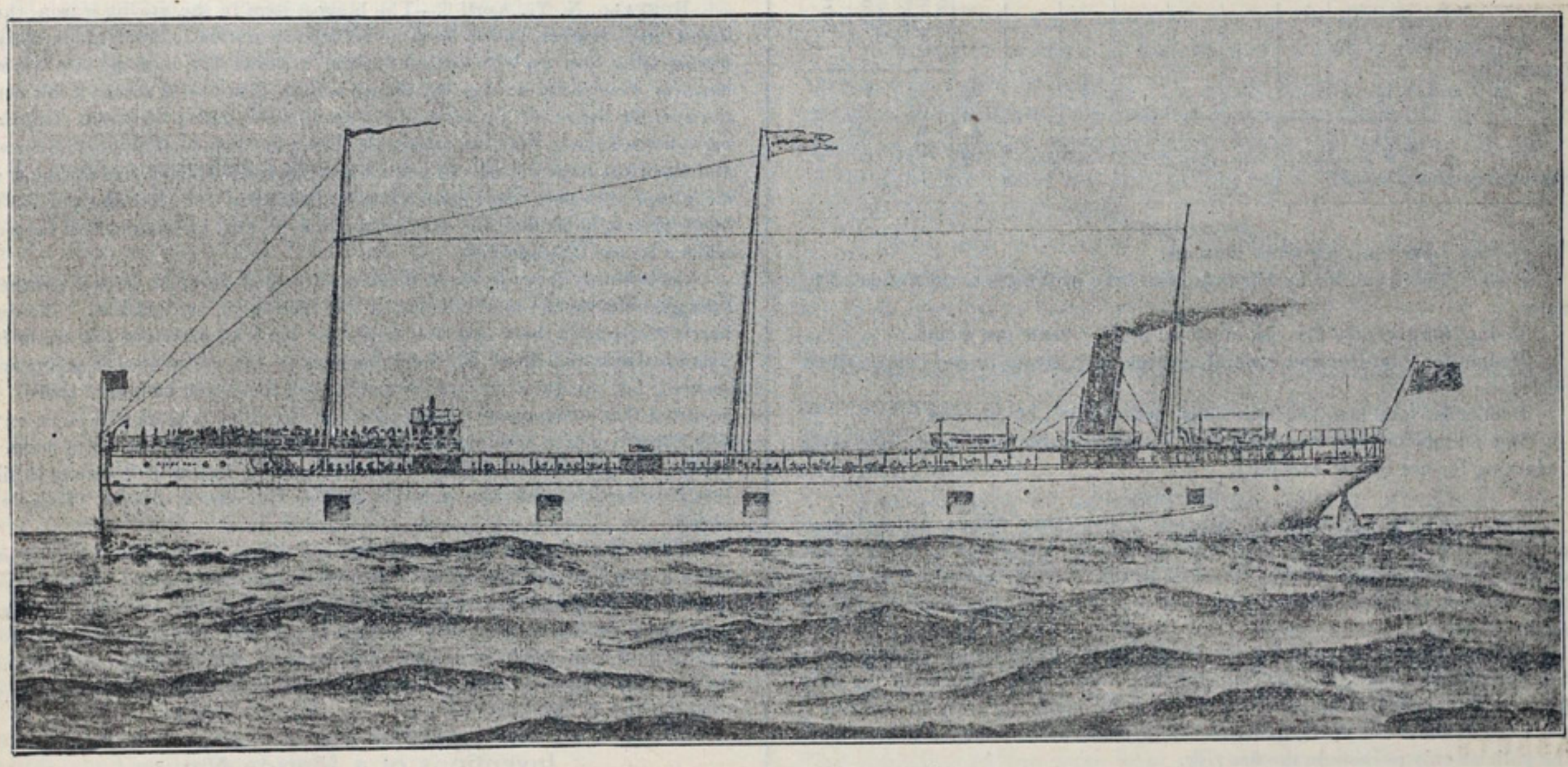
To Care For World's Fair Passenger Business.

In a great deal that has been written about the plans of the World's Fair Steamship Company for providing, during the fair, transportation by water between Jackson park and the several piers and docks on the lake front, the whaleback passenger steamer Christopher Columbus has been given unusual prominence. The arrangements of this company, or syndicate of capitalists headed by R. S. Henry of Chicago, are by no means confined to the operation of the whaleback steamer, as in caring for the control which they have secured of the passenger traffic by water to and from the fair grounds, some novel and interesting changes will be made in several freight and passenger boats that have been chartered for the service. The accompanying engraving of the new steel steamer Arthur Orr, now nearing completion at the yard of the Chicago Ship Building Company, and under charter from her owners, C. W. Elphicke and others of Chicago, for this world's fair service, will serve to show how one of the big lake freight steamers is to be fitted up for carrying a large number of passengers. In addition to this steamer and the Christopher Columbus, the company has under charter the side wheel excursion steamer City of Toledo, freight steamers Palmer and Livingstone and the ferry boats Duluth and Superior. Alterations similar to those shown in the illustration were intended for the steamers Palmer and Livingstone, but it is now probable that these boats will not be used for the passenger traffic but will be put into the general freighting business on the lakes, and other vessels already suited to passengers engaged in their stead. This can be done, as the syndicate in chartering the vessels reserved the right to operate them in the coal, ore and grain trade if such a course was desired. All of the boats will be used for general excursion business.

Docks are being built with a special view to rapid handling of both boats and passengers, and a most interesting feature of the whole system will be a line of fourteen electrical buoys, operated from one station and extending along the lake front between the fair grounds and the docks opposite the central portion of the city. This line of lights, under the direction of Capt. M. F. Symonds, who is in the United States light-house service, is intended to make navigation safe and easy, and is for the benefit of the numerous vessels of all kinds that will be assembled at Chicago, as well as the boats of the transportation company. A United States revenue cutter will be constantly on duty to see that vesslemen obey the instructions of the light-house board. Boats going southward will keep to the west of the bnoys both day and night, and on northward trips vessels must keep to the east of the buoys.

The Arthur Orr is a steel steamer of the following dimensions: Keel, 287 feet; over all 305 feet; beam, moulded, 41 feet; depth, moulded, 24 feet 7½ inches. The water bottom is 3½ feet deep and she has two complete steel decks and gangways for package freight. The engines, built by H. G. Trout of Buffalo, are of the triple expansion type, the cylinders being 19,32 and 52 inches by 45 inches stroke. Two boilers, built by the Lake Erie Boiler Works of Buffalo, are 12 by 12 feet.



STEEL STEAMER ARTHUR ORR AS ARRANGED FOR WORLD'S FAIR PASSENGER BUSINESS.

This steamer is expected to carry 120,000 bushels of corn out of Chicago when engaged in the general freighting business for which she is being built. It is not surprising, therefore, that she will, with the arrangement of decks for excursion business, be allowed 2,500 passengers. A wood deck has been put down over the steel main and spar decks, and in addition an awning deck of wood will run the full length of the boat over the spar deck on a level with the tops of the houses. Two stairways will lead from this awning deck to the spar deck, but passengers will be carried on the awning deck forward of the pilot house only. From the main to the spar deck there will be three broad oak stairways. The midship house on the spar deck will be utilized for a ladies' cabin, and on the main deck there will be a men's toilet room, bar and lunch room. The boat's outfit will be modern in every way and will include an electric plant installed by the Fisher Electric Company.

Tariff for Hull Insurance.

Lake underwriters have furnished local agents with the hull tariff as agreed upon at the Chicago meeting several days ago. The business of insuring hulls has not as yet begun, and there is no telling whether the tariff will be sustained, but the underwriters are all claiming that there will be no cutting of rates. The tariff which follows is practically the same as that of last year:

VALUATION IN POLICY.		$150,000 and over	$100,000 and under $150,000	$75,000 and under $100,000	$50,000 and under $75,000	$25,000 and under $50,000	$15,000 and under $25,000	$10,000 and under $15,000	Under $10,000		Particular Average.
Limit of Insurance, Except B1.		9/10	9/10	8/9	7/8	6/7	5/6	4/5	2/3		
STEAMERS.	A 1	.....	3	3½	4	4¼	5½	6½	8	.....	
	A 1½	.....	3¾	4	4½	5	6	7	9	.....	
	A 2	.....	.....	4½	4¾	5¼	6½	7¼	9¾	.....	
	A 2½	.....	.....	.....	6¼	6¾	7½	8¾	11	.....	
Limit ⅔ on B 1		.....	.....	.....	.....	8	9	10½	13	.....	
Season April 1 to Nov. 30											Partic lar Average same as full Season rate for full Policy.
SAIL.	A 1	.....	.....	4¼	4¾	5¼	6	7	8½	.....	
	A 1½	.....	.....	4½	5	5½	6½	7½	9	.....	
	A 2	.....	.....	.....	5¼	6	7	8	10	.....	
	A 2½	.....	.....	.....	.....	8	9	10	12	.....	
Limit ⅔ on B 1		.....	.....	.....	.....	9	11	12	14	.....	
Season April 1 to Nov. 30											
									5,000 and under 10,000	Under 5,000	
LAKE TUGS.											
A 1 and A 1½		.....	.....	.....	.....	3½	4	4¾	5¾	7	5
	A 2	.....	.....	.....	.....	4	4½	5¼	6¼	7½	6
	A 2½	.....	.....	.....	.....	.....	.....	6	7	8½	8
	B 1	.....	.....	.....	.....	.....	.....	6¾	7¾	9	9
Season April 1 to Dec. 10											

DEDUCTIONS.

Deduct ¼ per cent. for water bottoms.

Deduct 1 per cent. for harbor tugs, with lake privileges to the extent of 20 miles.

Deduct for excepted fire risk on steam craft, 6 cents per month.

Deduct for total loss and general average only, steam 10 per cent., sail 20 per cent.

Deduct for total loss (actual or constructive only), 30 per cent.

Deductions for total loss and genera' average or total loss to be made after deducting for fire risk if excepted.

ADDITIONS.

For wrecking privileges on tugs, add 1 per cent. When full wrecking privileges are not desired, policies may be endorsed permitted to wreck ¼ per cent. additional for each service rendered to Oct. 1, and thereafter at ½ per cent. for each service rendered. For yearly policies add ¼ per cent. to above rates.

For agreement to make loss or damage by fire to be settled under conditions of special clause, add 50 cents for the season, with deductions for time expired, and cancellation as noted below, or 75 cents for the year and the ¼ per cent. as above for yearly policies. This clause to be attached to such marine policies only as include the fire risk.

Add for collision clause one per cent. for season, with deductions for time expired, and cancellation as stated below.

The one-third off new for old clause may be waived on wooden hulls, including spars and wire rigging, but not including canvas, ropes and hawsers, on payment when policy is issued of 20 cents on A1, and 30 cents on A1½ additional premium. The same concession may be allowed composite hulls on payment of 10 cents additional premium when policy is issued.

RULES.

No allowance or deduction shall be made for portions of months expired except as below noted, and there shall be no suspension of the policy or rebate allowed for vessels lying up during the life of the policy.

Not more than six months credit on premiums, and all notes to mature on or before Nov. 1 on season risks. Discount for cash at the rate of 6 per cent. per annum.

Extensions.—Free extension may be granted to Dec. 5 at noon, to all steamers which class A1 and A1½. A charge for extension on other vessels shall be made as follows: On steam vessels 2 per cent. and on sail vessels or tow barges 4 per cent. of the full season rate per day on the form of policy issued. Such extension to be for five days from noon of Nov. 30, provided application be made for such extension before noon of Nov. 30. A further extension may be granted from noon of Dec. 5 on steamers only, and only for the purpose of completing an unfinished voyage, and the charge for such extension shall be 5½ per cent. on A1 and A1½ and 5 per cent. on A2 of the full season rate per day on the form of policy issued.

The classification of Inland Lloyds 1893 register to govern as to class and value. Value in policy not to be less than 80 per cent. of va[illegible] in register, and not to exceed register valuation with 10 per cent. a[illegible]ereto, except as noted below. Vessels, sail or steam, except tugs, under $25,000, not to be allowed any increased valuation.

DEDUCTIONS.

Up to Sept. 1 a deduction of 1 per cent. of the full season rate on the form of policy issued will be allowed for each and every five days until policy attaches, the last six days in any calendar month of thirty-one days to be considered five days only.

For risks not attaching until Oct. 1.....40 per cent. of the season rate.
" " " Nov. 1.....55 " " " "

(No deduction for partially expired months of Sept., Oct. and Nov.)

CANCELLATIONS.

June 1, return	70	per cent. of season rate.		
July 1, "	60	"	"	"
August 1, "	50	"	"	"
Sept. 1, "	40	"	"	"
Oct. 1, "	30	"	"	"
Nov. 1 "	20	"	"	"
Nov. 15. "	10	"	"	"

(No allowance for partially expired months except for month of November as above noted.)

No general agent or company to allow over 10 per cent. commission to local agents, or any other consideration whatever, at any time whatsoever, and no agent, company or general agent shall be allowed to pay any part of his commission to any vessel owner, broker or any other person.

Buffalo Coal Rates.

Special Correspondence to the MARINE REVIEW.

BUFFALO, N. Y., April 6.—The biggest item in the spring season, the fixing of coal freights, had to be done before ore started. Some of our shippers were getting overrun with coal and made a break for tonnage late last week, but they were sharp enough to capture a boat that would accept a low rate; so the opening figure to Chicago and Milwaukee was put at 60 cents. Only about eight boats have so far been taken, as the two heavy shippers, Lackawanna and Reading, have not moved yet. Capt. Thomas Wilson, has as usual, made a contract rate with the Pennsylvania Company for Duluth, and his three boats were to be loaded for that port, but it was concluded that they could make a trip to Chicago first.

As business days approach there is an added interest in the prospective struggle between the lumbermen and the lumber shover's union. The dealers here are strong In their opinions, and their move to pitch out the union for its past misdeeds and throw all their business to the stevedores is pretty sure to succeed, but the union owns Tonawanda and there will be a fight there. It is reported that a committee of Saginaw and Bay City dealers will be down here this week to confer with our dealers and see what can be done to make common cause against the union. The Tonawanda union is lowering initiation fees in order to get all the men in before the season opens. There's war ahead.

There is a speck of war ahead also on the occupation of the dock on the creek at the foor of Main street. The excursion boats which number about a dozen, are not going to give up the right to land there because the Lackawanna company have leased most of it to other lines. On the claim that the dock is city property, they will show fight, and in case the freighters are inclined to be unpleasant they threaten to occupy all they can get of the dock whether the other boats like it or not.

Inventions of a Marine Nature.

Specially reported from Washington for the MARINE REVIEW.

494,121 and 494,122—Coal barges by Johnathan Chase of Boston, Mass.; filed Aug. 16, 1888; serial number 282,838. The patent has been assigned to Henry Kellog, Jr., of the same place. This invention is a barge with an elevator well at either end, and a false bottom making a passage way between the wells. This elevator is a sprocket chain provided with buckets.

494,493—Chain by Glenn G. Howe of Indianapolis, Ind., and assigned to the Ewart Manufacturing Company of Chicago, Ill.; filed July 30, 1891; serial number 401,129.

493,826—Shoal alarm by Samuel H. James of London, England: filed March 17, 1891; serial number 385,418. A kite sounder attached to the tow line by a bridle so adjusted that when a key trigger at the bottom of the sounder drags and releases part of the bridle, there is a jerk in the tow line and the alarm is given.

493,692—Steering apparatus by Thomas Ellis of Rochester, Mass.; filed July 27, 1892; serial number 441,349. Marine screws are placed in the deadwood at the bow and stern, and with axis at right angles with the keel line, so that by revolving in the same or opposite directions the boat may be turned or drifted.

494,066—Marine railway by Edward Kay of Phillipsburg, Pa.; filed Dec. 9, 1892; serial number 454,656. A submarine rail and car and floating car with motor, and means for transmitting power to the submarine driving axle.

Copies of patents can be had from the MARINE REVIEW, No. 516 Perry-Payne building, Cleveland, O., at the uniform rate of 15 cents each.

Lake Carriers' Association.

M. A. BRADLEY. President.

VICE-PRESIDENTS: James W. Millen, Detroit, Mich. — John G. Keith, Chicago, Ill.
Frank J. Firth, Erie, Pa. — W. S. Brainard, Toledo, O.
Thomas Wilson, Cleveland, O. — R. P. Fitzgerald, Milwaukee, Wis.
Peter F. Miller, Buffalo, N.Y. — Alex. McDougall, Duluth, Minn.

Charles H. Keep, Secretary, Buffalo, N.Y. Geo. P. McKay, Treasurer, Cleveland, O.
Harvey D. Goulder, Counsel, Cleveland, O.

On Saturday of this week the finance committee of the association will meet in Cleveland, to fix wages for the coming season. In order to avoid cause for complaint, the committee at a meeting held in Cleveland on Saturday last decided to invite all members of the association to be present at the coming meeting and express their views on the subject of wages. There is a disposition among some members to reduce the opening schedule of a year ago, which was a little higher in a few cases than in previous years, but it is very probable that the sentiment in favor of last year's opening scale will prevail, as would have been the case if wages had been fixed on Saturday last. This is almost certain with the engineers, in whose pay there is a wide range to draw upon, and of whom many have already been put to work. The question will not be fully settled, however, until the general meeting of owners is held, as even with the engineers the owners claim that they have gone to work on the understanding that they are to be paid association wages.

At Detroit today a committee of the association, consisting of H. D. Goulder, Treasurer McKay, Secretary Keep and Captains W. S. Mack, John Hall, James Stone and C. E. Benham, will present to a board of army engineers, of which Gen. Poe is the senior member, the vessel owner's side of the rafting question. In addition to oral arguments, a brief will be submitted, and the committee will ask permission to file later statements from a large number of masters relative to their experience with rafts. These statements will be prepared as soon as possible after the Detroit meeting. The rafting interests will enter protest against any regulations as to the size of rafts in open waters, and as the passage of a bill in the next Congress regulating raft towing will depend largely upon the report of this board of engineers, the vessel owners realize that they have an important work on hand in their present action.

At Saturday's meeting of the finance committee, Secretary Keep was instructed to have printed a large number of copies of the rules adopted at the last meeting of the board of supervising inspectors of steam vessels for the government of steam craft while navigating narrow channels. These rules will be distributed by owners to their captains and are to be posted in the pilot houses of all association vessels. Andrew Biemel, formerly shipping master of Chicago, was appointed to take the place of Mr. Parnell of Ashtabula, who resigned. A similar vacancy at Escanaba was filled by the appointment of George McCarty, an ex-deputy sheriff. If Milwaukee owners can promise any increase in membership, a shipping office will probably be established at that port also.

By a settlement of the canal tolls question on terms of justice to American vessels on the lakes, the Ogdensburg Transportation Company, operating a line of big wooden steamers between Chicago and Ogdensburg in connection with the Vermont Central Railway, is certainly benefited to the extent of $15,000 or $20,000 a year. This is a simple illustration of the value of an organization like the Lake Carriers' Association. This special advantage derived by the Ogdensburg company was, of course, unthought of in the fight against the discriminating canal tolls.

A building has been secured in Chicago for the exhibit of the White Star company. Models of trans-atlantic steamers from the Oceanic, the first boat of the line, to the Teutonic and Majestic will be on exhibition. The exhibit of the engineer corps of the army, which will have the place of honor in the government building on the fair grounds, will also be of special interest to marine men. Models representing the work at Hell Gate, Sandy Hook, mouth of the Mississippi river, Key West, Delaware breakwater and other places where river and harbor improvements have been going on for years past will be shown to advantage in the spacious apartments given up to engineering by the government.

Some Facts Regarding the Monterey's Boilers.

The March number of the Journal of the American Society of Naval Engineers contained an article on the "Contract Trial of the U. S. S. Monterey," in which little was said about the adaptability of the Ward boilers to large vessels. The REVIEW called attention to the absence in the article of data on this point, and the comment prompted Passed Assitant Engineer W. M. McFarland, secretary-treasurer of the society, to secure for us some extracts from the report of the trial board, which will prove doubly interesting, on account of the sensational articles regarding the Monterey printed recently in the New York Times.

It may be said in explanation to the first quotation from the report of the board that, owing to the comparatively small steam room of the Ward boilers, it was considered advisable to have reducing valves between them and the main steam pipe, and to carry the pressure of these boilers about 10 pounds higher than in the cylindrical, or Scotch boilers, so as to insure freedom from any tendency to draw on these boilers unduly. As will be seen from the quotation, these valves chattered so badly that they were held up out of place, so that during the trial all the boilers were in free communication. The report says.

"During the preliminary trial the reducing valves of the Ward boilers were used a short time, but were 'gagged up' afterwards, on account of the noise made by the valves chattering on their seats. They were not used during the official trial.

"The water in the coil boilers was carried at the heigth of 3 inches from the bottom of the glass guage. There were no mishaps in the fire room, and the steam was well maintained for about an hour and three-quarters, when it began to fall off." (As will be seen later on, this falling off in the steam pressure was due to inefficient firing)

"There was no trouble with the boilers priming. From the performance of the Ward boilers we are of the opinion that they are well adapted to form the major part of the boilers of vessels of war."

"In conclusion, we consider the whole performance such as to demonstrate the satisfactory construction, reliability and perfect efficiency and durability of the entire machinery, including the auxiliaries."

The following quotations are from letters of officers who were present at the trial, and who were not members of the official trial board. The first is from an officer who was stationed in the fire rooms.

"The Ward boilers worked well, showing no signs of distress under the heavy forcing. There was no trouble about keeping a steady weter level,—about three inches showing in the guage glass—and the steam pressure was fairly uniform. The reducing valves were kept off their seats during the official trial, previous experience having shown that, when allowed to operate, they kept up a continuous hammering."

"It was my opinion that the firing was not such as to accomplish the best results; there appeared to be little personal interest among the firemen as to success or failure. The fires were carried for the most part too heavy in the Ward and too light in the Scotch boilers."

"I can appreciate the fact" says Mr. McFarland "that it would be more interesting to readers in general if the trial board of the Monterey had gone into the question of the working of the Ward boilers with greater particularity, but their working was so entirely satisfactory that they seem to have thought it unnecessary to do more than mention that fact. It is to be remembered also that, while this was the first time these boilers had been used in battery at sea, one of the boilers of this make had been subjected to about the most severe test ever given a boiler in the competition which led to its adoption for the Monterey. These trials lasted for about four or five days, and included two runs of twelve hours each under an air pressure equal to 2 inches of water, burning 55 pounds of coal per square foot of grate surface."

Ore Sales Market---Lake Freights.

A statement prepared by the ore dealers of Cleveland last week showed that on March 26 there was 2,500,000 gross tons of ore on dock. On April 15, 1892, which was twenty days later in the year, there was 1,750,256 gross tons on dock. Shipping orders show that the difference in these figures will be practically wiped out in the twenty days intervening between Marce 26 and April 15 of this year, so that the condition of the docks as regards supplies is about as it was a year ago, notwithstanding an aggregate of 9,074,234 tons in shipments last year, against 7,057,078 tons in 1891. It is also agreed that stocks of ore at the furnaces are very much lighter than they were at this time a year ago, and there is no surplus of pig iron.

Thus the ore dealers see no cause in the condition of supplies for relinquishing their demand for $4 on standard Gogebic Bessemer ores, and there is no change in the situation. Non-Bessemer ores on dock have been selling quite freely, and rumors of several sales of Bessemer for next seasons delivery have been current during the week, but they are not of importance, as the leading furnace men still refuse to make purchases on the four-dollar basis. Until the large buyers of ore come into the market, there can be nothing definite as to lake freights.

Nearly all of the vessels at Ohio ports, for which first cargoes of coal were sought, have been chartered at 50 cents to the head of Lake Superier, 55 cents to Milwaukee, Green Bay and Chicago, 50 cents to Manitowoc and 45 cents to Gladstone and Chicago. On Wednesday twenty vessels in all had been chartered for hard coal at Buffalo, the great bulk of the tonnage going to Chicago and Milwaukee at 60 cents. One or two engagements have been made for hard coal for the head of Lake Superior but a fixed rate has not as yet been made. The rate on lumber from Ashland to Buffalo has been fixed at $2.35.

Stock Companies.

For convenience in the management of vessel property, stock companies are now formed by most owners of new boats on the lakes. A stock company will control the steel steamer Alva, being built by the Cleveland Ship Building Company for the Bradley line of Cleveland, and the steamers Gladstone, Hesper, Pasadena and Grover of the same line were a few days ago made the property of a corporation to be known as the Ohio Transportation Company. Alexander McVittie, John C. Parker, Clarence A. Black, A. I. McLeod, C. B. White and Alexander Bernie, owners of the steamer Progress, now being rebuilt at Detroit, have incorporated their interests in the Progress Transportation Company of Detroit. By the division of interests made between W. H. Wolf and Thomas Davidson at Milwaukee last week two new companies are formed and the Wolf and Davidson Steamship Company passes out of existence. The Wisconsin Steamship Company, which includes the Davidson and minor interests, and which is capitalized at $385,000, will control the steamers Ferdinand Schlesinger, Thomas Davidson and George H. Dyer, while the steamers W. H. Wolf and Fred Pabst, of which Commodore Wolf retains a control, will be the property of the Wolf Transportation Company.

Trimming Machines.

Mr. R. Thew of Cleveland, who has been at work for a long time past on a machine intended primarily for handling iron ore in the holds of lake vessels, has placed two of the machines in the wooden steamer Nimick, owned by the American Transportalion Company of Fairport, O., and it is understood that two more of them will be put into the Harper, a sistership, as soon as possible. The apparatus, which has been referred to several times in the REVIEW, is a combination revolving and traveling derrick and dredge, which is attached to overhead rails in the hold. It is first intended to make a success of it for trimming purposes and then endeavor to apply it to the loading of buckets in the hold. Mr. Thew has made several improvements in the machine, and several vessel men who were at first skeptical about it are now inclined to think that it will shortly come into general use on ore carrying steamers. Trimming charges alone form a big item of expense on such vessels.

"Shipbuilding Here and Abroad."

To those who have embarked in the shipbuilding industry in this country and to those large-hearted Americans to whom native independence and advancement are always dear, Naval Constructor Philip Hichborn's article in the North American Review for the month of April must be full of gratifying information. Under the heading of "Shipbuilding Here and Abroad," Mr. Hichborn has forcibly demonstrated the reasons why we should foster this phase of our domestic manufactories, and has shown how, despite the meager encouragement of the general government and federal enactment, the shipbuilding industry of this country has grown to the magnitude and prominence of its present position. No one to whom this branch of our arts is of interest should fail to read the article.

Norwegian Viking Ship.

The Norwegian Viking ship for the Chicago exhibition is a true copy of the famous Gogstad relic, and shows to perfection the remarkable ship building skill of the old Vikings, and the attractive lines they produced in their vessels. The ends are sharp and the sides are somewhat flat under water, whereas above the water line they slope upwards. The vessel is built of oak planks, tarred inside and outside. Its length is 77 feet. There is no real deck, but several "lids," of boards fastened together, form a kind of floor, about 4 feet below the top of the ship's side. At both ends there are slightly raised platforms, and on the platform aft in the vessel is the chief's seat. There is no room for proper cabins below the flooring, but there will be good accommodation for stores. For the protection of the men a tent can be erected, there being a scaffolding resting on three poles for this purpose. The rudder is on the side of the vessel, and is shaped as a broad oar. The Gogstad ship had sixteen oars on each side, which are put out through holes in the ship's sides. Along the sides will also be placed a number of shields, about 3 feet in diameter, alternately yellow and black.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on April 1, 1893:

	Wheat, bu.	Corn, bu
Chicago	16,200,000	5,588,000
Duluth	16,622,000	341 000
Milwaukee	2,000,000	13,000
Detroit	1,964,000	49,000
Toledo	3,691,000	1,821,000
Buffalo	1,929,000	251,000
Total	42,406,000	8,063,000

At the points named there is a net increase for the week of 509,000 bushels of wheat and a decrease 215,000 bushels of corn.

In addition to the above stocks, there was afloat in lake vessels at Chicago on the 1st inst. 4,762,000 bushels of wheat, 2,938,000 bushels of corn and 316,000 bushels of oats; at Duluth, 571,000 bushels of wheat; at Detroit, 374,000 bushels of wheat, and at Toledo 25,000 bushels of wheat and 132 bushels of corn.

THE MARINE REVIEW, 516 Perry-Payne Building, Cleveland, O., will pay 20 cents for copies of issues 1 and 10, volume 3, if mailed to the foregoing address in good order.

A special meeting of the board of supervising inspectors of steam vessels will be held in Washington, May 10, to take action relative to an act passed by the last Congress for the regulation of lights on canal boats and barges towed by steam vessels.

It was thought that an active demand for iron ore, even at reduced prices, would stimulate trading in Lake Superior mining stocks about this time, but consumers have as yet bought very little of the product of the mines for the coming season, and it is now very probable that the market for stocks will remain as dull during the summer as it has been for more than a year past. The certainty of a reduction of at least 50 cents a ton all around in prices, caused mainly by the development of the Misabe range, is in itself enough to warrant this opinion. Some little trading has been going on during the past ten days in Lake Superior stock at about $30 and Chandler at about $40, but outside of a few transactions in shares of these two companies the market is lifeless.

Robt. N. Dickman of Cleveland, analytical chemist, and for several years in charge of the Bessemer department of the Otis Steel Company, and J. Kenneth Mackenzie, for four years chemist of the Illinois Steel Company at its Union works, have formed a partnership to carry on mining expert and metallurgical chemistry work. The office will be in the Rookery, Chicago.

Mr. Joseph L. Colby, vice-president of the Penokee and Gogebic Consolidated mines and the Aurora Iron Mining Company, announces the removal of his office from Cleveland to No. 36 Wall street, New York City.

A report from the Colby mine says that the mining force will be increased to 1,100 men on May 1, and that the 1893 output will be fully 750,000 tons, of which one-third is already mined.

Trade Notes.

Crawley & Johnston of Cincinnati, O., known to a number of lake vessel owners as manufacturers of a hydraulic steering gear, are now manufacturing an automatic steam steering gear, which is lighter and cheaper than the hydraulic machine.

The American Shipmaster's Association, publishers of the Record of American and Foreign Shipping, last week classed the three-masted schooner Lavinia M. Snow, bark Augustine Kobbe, screw steamer Mineola and ship P. N. Blanchard, all American, and the Norwegian bark Hippolyta.

Wharf drops of the Winters patent are manufactured by the American Ship Windlass Company of Providence, R. I. One of these drops has just been completed for the Nantasket Beach Steamboat Company, and an order was recently received from the Maine Central Railroad Company for two of them, to be similar to those now used by the Boston & Maine railroad on its pier at Bar Harbor.

Official Numbers and Tonnage.

Numbers and tonnage were assigned the following lake vessels by the Bureau of Navigation, E. C. O'Brien, commissioner, during the week ending April 1: Steam—F. S. Sterling, Detroit, Mich., 78.19 tons gross, 39.10 net, No. 120,927; W: H. Moore, Sandusky, O., 10.80 tons gross, 6.85 net. No. 81,429.

No Ice at Port Huron.

A telegram Wednesday evening from the Kendall Marine Reporting Company said: "Wind southwest for twenty-two hours; no ice in sight; wind northeast now, light, colder; water about the same as last fall.

Mr. Griscom's Position on the Engineer Question.

In view of the interest created in marine circles by the action of the International Navigation Company in retaining the old staff of engineers on the steamers New York and Paris after their transfer to American register, the REVIEW wrote President Clement A. Griscom of the steamship company for a statement of the cause and grounds for such action. Mr. Griscom's reply is as follows:

Editor MARINE REVIEW: The law permits foreign-born engineers to be licensed as engineers of the United States upon having declared their intentions to become citizens of the United States six months prior to the issuance of their licenses. We would have been guilty of grave injustice to a faithful staff if we turned them out of the New York and Paris when they had qualified themselves to be licensed by declaring their intentions to become American citizens. We considered it, and still believe it to have been our duty to recognize their faithful services by continuing them in their positions.

Aside from this consideration, which should be controlling, any one acquainted with the subject knows the absolute necessity to the successful use of such vessels as the Paris and New York of having a staff of engineers accustomed to their machinery and boilers. The sudden displacement of the whole staff of engineers is simply out of the question. It would mean a loss of speed and a liability of injury to boilers and machinery while a new body of engineers is being formed. These vessels are the training schools of the future engineers of the ships building for the line.

The present engineers are all applicants for citizenship, and have complied with the act of 1874. No nation, and especially one intending to build up a steam marine, could afford to refuse admission to the ranks of its marine engineers to men who had not become fully naturalized. To refuse to allow men to be licensed as marine engineers until after five years residence in the United States would exclude marine engineers from becoming citizens of the United States, as an applicant for citizenship could not follow his profession during the five years of probation, and the act of 1874 provided for this.

No more short-sighted policy could exist than an attempt to exclude from citizenship of the United States such a class of men as marine engineers. The experience of nations which have attempted to expel highly skilled labor has been a signal failure. The growth of this country is due to the generosity of feeling which has opened all ranks in American life to the foreign born as well as the native.

International Navigation Company, Office of the President, Philadelphia, Pa., March 22, 1893.

Yours truly,
C. A. GRISCOM, President.

President George Uhler, of the National Association of Marine Engineers, was also asked by letter to give a summary of the objections of the engineers to the action of the International company, but as he spends most of his time visiting lodges of the association in different parts of the country it is not surprising that an answer has not yet been received.

Preparations at the Sault Canal.

Special Correspondence to the MARINE REVIEW.

SAULT STE. MARIE, Mich., April 6.—The canal lock force under the direction of Supt. Martin Lynch has begun the usual spring repairs. The canal authorities recommend that 14 feet 6 inches be considered the available draft of water for the opening. Plans for the elegant new canal office between the two canal locks have been completed, and work will begin on it this spring. The contractors will resume work on the new lock this week.

There will be plenty of coaling docks on the "Soo" river this season. Pickands, Mather & Co. will operate a dock at Detour, with five pockets, which will hold about 5,000 tons. Thos. H. Watson of Detour has just completed a first class dock at that place, and George Kemp has made extensive repairs on his dock here.

Lieut. Riche and staff have details completed for an early beginning on the new survey of St. Mary's river.

Appointments of Masters and Engineers.

Wilson Transit Company, Cleveland, O.: Steamers—Yuma, Capt. Wm. Carlisle, Engineer W. F. Gregory; Spokane, Capt. Dan Buie, Engineer Peter McCune; Olympia, Capt. A. M. Shephard, Engineer F. Harmon; Yakima, Capt. W. W. Dawley, Engineer John Costello; Missoula, Capt. W. J. Pringle, Engineer A. F. Hogle; Sitka, Capt. Geo. W. Bessant, Engineer John Dashaw; Wallula, Capt. C. A. Benham, Engineer James McGuirk; C. Tower, Jr., Capt. W. T. Sutherland, Engineer D. W. Foster. Schooner—Wadena, Capt. C. H. Daniels.

Fries, Valentine, Milan, O.: Steamer—William Edwards, Capt. W. W. Collins. Schooners—Golden Age, Capt. John C. Flower; Charles Foster, Capt. D. H. Stalker; Marion W. Page, Capt. John F. Higgie. No appointment has as yet been made for the schooner Atmosphere.

Detroit, Grand Haven & Milwaukee Railway, Milwaukee: Steamers—Wisconsin, Capt. Thos. Honner, Engineer Alex Currie; City of Milwaukee, Capt. J. F. Smallman, Engineer Charles Barron.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Chicago Office, Western Union Building, 110 LaSalle Street.
Published every Thursday at No. 516 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,600 vessels, measuring 1,154,870.38 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of vessels of 1,000 to 2,500 tons on the lakes on June 30, 1891, was 310 and their aggregate gross tonnage 512,787.58; in all other parts of the country the number of this class of vessels was, on the same date, 213 and their gross tonnage 319,750.84. The classification of the entire lake fleet is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,592	756,751.53
Sailing vessels	1,243	325,131.06
Canal boats	703	72,515.42
Barges	62	20,472.37
Total	3,600	1,154,870.38

Tonnage built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	No. of boats.	Net Tonnage.
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
1891	204	111,856.45
Total	1,021	485,042.94

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 228 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014. Number of boats through St. Mary's Falls canal in 1891, 225 days of navigation, 10,191; tonnage, net registered, 8,400,685. Number of boats through Suez canal during 1891, full year, 4,207; tonnage, net registered, 8,698,777. Number of boats through St. Mary's Falls canal in 1892, 233 days of navigation, 12,580; tonnage, net registered, 10,647,203. Number of boats through Suez canal during 1892, full year, 3,559; tonnage, net registered, 7,712,028.

Entered at Cleveland Post Office as Second-class Mail Matter.

AGAIN Canada's law makers have taken up the canal question and have given attention to a project that is the most pretentious ever submitted to the dominion parliament. A few days ago a charter was granted to a company known as the North American Canal Company, in which Chauncy Dutton of Pittsburgh, Pa., and a large number of well known men in Canada are promoters. For the purposes of the undertaking, the company asks power to raise the modest sum of $250,000,000 of capital by means of stocks and bonds, and presents a prospectus glowing with promises of a revolution in the cost of transportation. The promoters propose, in brief, to not only construct a waterway of 20 feet through the several Canadian canals now in use between Lake Erie to Montreal but to also provide a canal of similar depth to New York by way of Lake St. Francis, Lake Champlain and the Hudson river. In the language of the prospectus "an adequate outlet for a continental commerce is to be secured by making a navigable system from the great lakes to Montreal and New York of 20 feet depth, or fully double the capacity of the existting waterway." In granting the charter to this company for operations connected with the Canadian portion of the project, the Canadian parliament has put all manner of safe guards around its action, such as calling for the expenditure of $1,000,000 within four years and completion of the canal to Montreal within ten years, and it is needless to say that, though other evidences of failure of such an undertaking by a private corporation might be lacking, the capital proposed renders the scheme hopeless of success in the money market. The incorporation of such a company in the dominion is, however, an object lesson for the consideration of statesmen in this country who will soon be called upon to solve this question of an outlet to the Atlantic seaboard for the commerce of the great territory beyond the lakes in both Canada and the United States. The eastern states who refuse to heed the demands of the northwest for lower transportation charges.

EDWARD MARSLAND, a marine and mechanical engineer, who was at one time one of the local inspectors of steam vessels in the port of New York, is a candidate for the position of inspector general under the new government administration. Little has been said about Mr. Marsland's qualifications for this office, which is a plum difficult to corral as long as the present incumbent retains the share of political ingenuity for which he has long been noted. It has been said. however, that Mr. Marsland has the endorsement of the marine engineers of New York, and if such is the case his chances are of a fighting kind. The united opposition of vessel owners could readily be secured against any aspirant to the office who might be recognized as the candidate of engineers.

AN article in a recent issue of the New York Sun, wrttten by Edward Farrer, of Toronto, one of the leaders in the movement for continental union, is interesting to anyone who has given attention to the waterways question in Canada. Mr. Farrer holds that the development of the Canadian northwest will be a factor in solving the question of annexation, on the ground that that section will afford homes for many millions and that its surplus grain cannot be marketed in Europe without the co-operation of the United States, in first developing the country and then providing a reduction in the cost of transporting its products.

MAY 1 is the average date of the opening of navigation at Duluth and Superior during the past ten years. The average date for first passages through the St. Mary's canal for this period would of course be earlier as vessels are sometimes delayed for several days in getting through the ice at the head of the lakes after passing the canal and rivers. In 1885 the ports of Duluth and Superior were not open to navigation until May 22. In 1890 opening was on April 20, in 1891 on May 1 and in 1892 on April 22.

Bound Volumes of the Review.

Owing to the valuable statistical information and engineering data contained in the REVIEW for the past year, there is a demand for back numbers. Copies of each issue of volume six, including all numbers from July 1 to Dec. 31, 1892 have been saved and neatly bound in cloth with leather corners and backs, so that we can fill a limited number of orders. The price of this volume, prepaid to any address in the United States, is $2.50. Address the MARINE REVIEW, No. 516 Perry-Payne building, Cleveland, O.

The total tonnage launched in Great Britain in 1892 was 1,300,142 tons; about the same as 1891 and 1890, but 46,000 tons below 1889. Excluding war ships, the merchant tonnage floated was 1,131,816 tons which was considerably less than in 1891. A larger proportion of the total is sailing tonnage—22 per cent. as against 18½ per cent in 1891. As to material 98 per cent of the shipping built was of steel. There was a decrease in the proportion of tonnage built for foreign orders, which has been falling off for several years.

McDougall's Rudder.

Sept. 17, 1891, Capt. McDougall filed an application in Washington for a patent on a rudder similar to that shown by the accompanying engraving. His principal claim was that the rudder he proposed could be manufactured more economically and would be lighter and stronger than rudders now in use. It will be seen that the frame of the rudder here shown has no longitudinal or cross ribs, but the inventor claimed that by making the wooden interior continuous more strength would be gained than by using the longitudinal or cross ribs, provided of course that there was an outside metalic covering to the wood on both sides, as in the case of nearly all rudders now made for big vessels and known as iron rudders.

For a better comprehension of the accompanying sketches it may be noted that Fig. 1 is an elevation partly in section of a

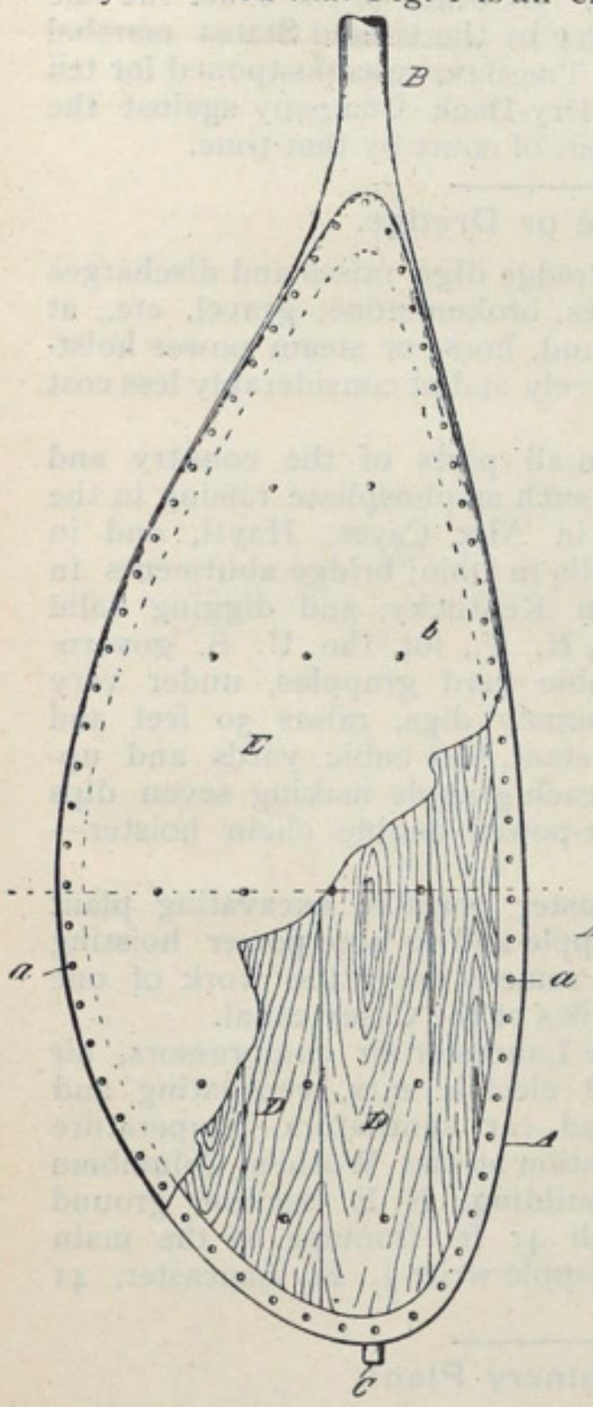


Fig. 2.

balanced rudder made in accordance with the proposed plan of construction, and Fig. 2 is a sectional view of the same. A is the frame and B the stock, which does not extend through the frame to the pintle C, as is the case with the common form of rudder. D D are the planks, which are preferably arranged in a vertical position, and should make in the best form a concave surface when of gradual thickness from each side to the center, as shown in Fig. 2. E E is the metal covering on each side of the planks and which is secured in place by means of rivets or bolts, *a a* passing through the edges of each covering or plate and through the outside frame. In order to further strengthen the rudder, additional bolts or rivets *b b* may be extended through both coverings or plates and through the planks. When in use, the interior planks will swell, it is claimed, under the action of the water so as to fit very tightly within the frame and between the coverings or plates.

From these specifications it can not be seen that there is any particular difference in this rudder and the ordinary iron rudder of the balanced kind now in use on the lakes, excepting the absence of the rudder post extending vertically through the frame, which would seem to be a very weak feature. The rudder of the Wetmore, which was destroyed on her first trip up the Pacific coast, is understood to have been of this form. It went to pieces, and the theory of its destruction held by Capt. McDougall is that the salt water ate through the rivet holes, caused the wood to expand, and forced the plates past the rivet heads. Thus gradually and piece by piece the rudder plates were lost in the ocean, until the Wetmore became helpless. He now proposes to use heavier rivets and not countersink but flatten them.

Personal Mention.

Capt. James Millen, of Parker & Millen, Detroit, spent Tuesday in Cleveland.

Capt. Rardon, of the firm of Macdonald & Co., Chicago underwriters, was in Cleveland during the week. He is on a business trip around the lakes.

Capt. John W. Jones, who came to the lakes fifty-three years ago and was engaged in building and sailing vessels up to a few years ago, died at Racine, Friday, in his seventy-fifth year.

Homer J. Carr, of Chicago, manager of the Lake Marine News Association, is making a trip around the lakes preparatory to beginning the regular telegraphic service for the daily newspapers.

Capt. M. M. Drake and Capt. John Green, of Buffalo, have again taken up business, the latter returning from a winter's sojourn in California, and the former from a trip of a few weeks in the south.

A telegram from West Bay City announces the death of A. K. Moseley, chief draughtsman for F. W. Wheeler & Co. Mr. Moseley was a valuable man in the Wheeler works, and an estimable gentleman.

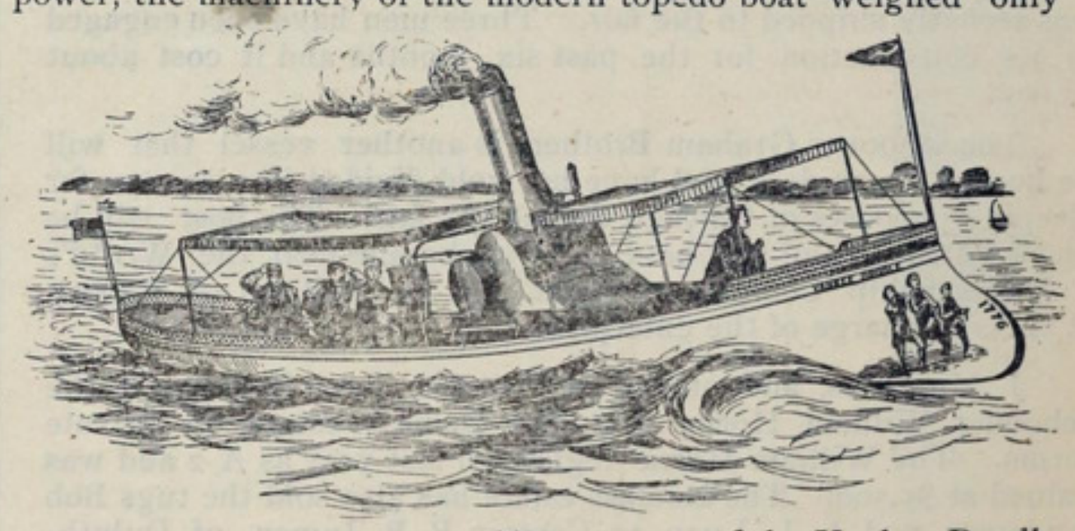
Capt. W. C. Brown, who was in the Cleveland-Cliffs Mining Company's steamer Cadillac, will look after the construction of the steel steamer Centurion at Wheeler's yard for the Hopkins Steamship Company, and will command her when she is ready for service, Capt. Brown owns some stock in this company.

James A. King succeeds his father, the late Zenas King, to the presidency of the King Bridge Company, and H. W. King has been elected vice-president of the company with H. B. Gibbs as secretary. We are informed by this company that there is no truth in the rumor that the ore conveying machinery to be erected by them at Conneaut will be operated by electricity.

Egbert P. Watson, editor and proprietor of the Engineer of New York, has sold an interest in his paper to H. W. Harris, formerly business manager of the Electrical World. The Engineer is one of the few technical journals in this country that give evidence of having a subscription patronage that is very valuable, irrespective of the extent of subscriptions. Mr. Watson's management of its editorial department is peculiar, and on some subjects rather violent but nevertheless interesting. Notwithstanding this oddity, the Engineer is a valuable newspaper property and can undoubtedly be made more valuable through the assistance of a good business manager.

A Mile in About Two Minutes.

McBride Bros. of Philadelphia, owners of the steam yacht Yankee Doodle, which covered a measured mile in July last in 2 minutes 1$\frac{3}{5}$ seconds, sends us the accompanying engraving of the boat. The MARINE REVIEW, issue of March 23, contained illustrations of the engines of the U. S. S. Powhatan, built in 1849, and the torpedo boat No. 2, built in 1891, and as an indication of the great advancement made in marine engineering during the period intervening, it was shown that, while the engines of the boat built in 1849 weighed 973 pounds per horse power, the machinery of the modern topedo boat weighed only



55 pounds per horse power. The owners of the Yankee Doodle claim that their little boat makes a showing even better than this, which is due to the very light weight and great steaming qualities of a pipe boiler, of which McBride & Fisher of Philadelphia are the patentees.

The total weight of the Yankee Doodle's machinery including boiler, engine, propeller, shaft, pumps, etc., is 3,200 pounds She has two 8 by 8-inch upright engines which turn 550 revolutions per minute. The boilers have 8 feet of grate surface and 300 feet of heating surface.

Around the Lakes.

The big straightback steamer Selwyn Eddy will make a trial trip at Detroit next week.

Two boats now at Buffalo, the A. L. Hopkins and Edward Kelley, have been placed to load wheat at Green Bay, any time before May 15, for Buffalo at 2½ cents.

Ore shippers have been notified that the Cincinnati, Hamilton & Dayton Railway Company will equip and operate ore docks at Toledo during the coming season.

Preparations are being made by the King Iron Bridge Company of Cleveland for the construction of iron ore hoists to be erected on additional dock property at Conneaut.

Capt. McDougall is very emphatic in declaring that a dull shipping business on the Atlantic coast is the only cause for bringing to the lakes the four whalebacks now on the coast.

The steel steamer W. H. Gratwick, building at Wheeler's West Bay City yard for the Mitchell Steamship company, will run between Buffalo and Duluth this season for the Western Transit company.

The new passenger steamer built in Grand Haven for Sands & Maxwell of Pentwater, to run between that place and Muskegon, has been launched and will be pushed to completion rapidly.

Steamers Carmona, Garden City and Angler have been purchased by the new Canadian company, which will run a line from Toronto to Montreal in opposition to the Richelieu and Ontario Navigation Company.

Elevator storage capacity at Port Arthur and Fort William is now about 4,000,000 bushels, and the Canadian Pacific company proposes to erect during the coming season another elevator of at least 1,000,000 bushels capacity.

"I will contiuue building wooden boats," said James Davidson of West Bay City, a few days ago, "as long as I can find timber at a reasonable cost. I will build them to sell, but will operate them if prices offered are not suitable."

H. A. Mallon has withdrawn from the Buffalo brokerage firm of Galvin, Mallon & Boland and his place has been taken by Capt. Alex Clark, who was prominent in the Ship Masters' Association and who has friends in all parts of the lakes.

Negotiations for the establishment of branch shops of the Frontier Iron Works and Wickes Boiler Works at Duluth have been pending for some time past, but the announcement that work on these shops was to begin immediately was premature.

Competitors of the American Steel Barge Company who announced some time ago that they would build a boat of the whaleback type at West Duluth during the coming summer are having material prepared for their ship building plant at the Marinette Iron Works in that city.

Capt. Mc Arthur, last season in the whaleback steamer Colgate, is said to have been given command of the world's fair passenger steamer Christopher Columbus. A model of the boat was recently shipped to the fair. Three men have been engaged in its construction for the past six months and it cost about $3,000.

The schooner Graham Brothers is another vessel that will be housed up on deck and have her hold divided into rooms for sleeping purposes at Chicago during the fair. The boat will be nicely fitted up and will have quiet anchorage near the World's Fair Steamship Company's dock. G. D. Fellows of Racine, Wis., is in charge of the enterprise.

J. M. Jones, and others of Detroit, have purchased the schooner William Horne from the Demass estate on private terms. The William Horne registered last year as A 2 and was valued at $5,500. The Demass estate has also sold the tugs Bob Anderson and L. L. Lyon to Captain B. B. Inman, of Duluth, who will take them to the head of Lake Superior and rebuild them for harbor towing purposes.

Steamers of the Bradley and Pennington lines, Cleveland, will tow some of the American Steel Barge Company's boats during the coming season. Capt. Thomas Wilson has given up the work of towing the barges with his steamers, as well as the management of them at lower lake ports, although the close business relations otherwise existing between Captains Wilson and McDougall have not changed in any way.

The steel steamer being built by the Cleveland Ship B[illegible]lding Company for M. A. Bradley and others will be nam[illegible]lva, and the wooden steamer under contract at F. W. W[illegible] & Co's West Bay City yard for the same managing owner will be named George Stone. The name given to the steel boat is in honor of the memory of Capt. Alva Bradley, while the wooden boat is named for Capt. George Stone, who was a life long associate in business with Capt. Alva Bradley and still retains an important interest in the Bradley fleet.

Sales of vessel property: Tug Gregory, W. A. Creech to L. P. & J. A. Smith of Cleveland, private terms; Schooner Michigan, F. W. Gilchrist of Alpena to J. C. Gilchrist of Cleveland and others, private terms; Schooner Uranus, E. S. Pease of Saginaw to John M. Balfour, H. Springborn and Thomas S. Lester of Marine City, $13,500. By order of the court the sale of the steamer H. D. Coffinberry by the United States marshal at Cleveland, which was set for Tuesday, was postponed for ten days. The libel of the Detroit Dry Dock Company against the vessel will probably be settled out of court by that time.

The Grapple or Dredge.

The Lancaster grapple or dredge digs, raises and discharges mud, clay, coal, sand, phosphates, broken stone, gravel, etc., at any depth or radius by either hand, horse or steam power hoisting machines much more effectively and at considerably less cost than by other methods.

These grapples are in use in all parts of the country and abroad on every kind of work—such as phosphate raising in the Carribean sea; digging canals in Aux Cayes, Hayti, and in Savannah, Ga.; sinking deep wells in Ohio; bridge abutments in Massachusetts; unloading coal in Kentucky; and digging solid sand and gravel at Sandy Hook, N. Y., for the U. S. government, where each of the one cubic yard grapples, under very unfavorable conditions, continuously digs, raises 30 feet and delivers at right angles 65 ft. distant, 840 cubic yards and upwards of material in ten hours, each grapple making seven dips every five minutes by a 20 horse-power double chain hoister—1,680 cubic yards daily.

In Savannah, Ga., a Lancaster portable excavating plant consisting of one cubic yard grapple and 20 hore power hoisting engine with one man to operate same is doing the work of one hundred men in digging nine miles of the Casey canal.

This machine as well as the Lancaster air compressors, air grips and brakes for cable and electric cars, ventilating and refrigerating machinery, railroad car ventilators, temperature controllers, etc., will be in operation at the World's Columbian Exposition, mines and mining building, N. E. section, ground floor—occupying 494 sq. ft. with 41 ft. frontage to the main aisle. For particulars of the grapple write J. H. Lancaster, 41 Cortland St., New York, N. Y.

A Big Machinery Plant.

Works of the Bucyrus Steam Shovel and Dredge Company at South Milwaukee, Wis, have begun active operations. The plant will be the finest of its kind in the country, and entirely suited to a large increase in the company's business, which had outgrown the facilities at Bucyrus, O. Over $200,000 worth of unfilled orders are on the books of this works. A suction dredge of original design, to cost $69,500 and to be used on Mississippi river work, under the direction of Capt. John Millis, New Orleans, is one of the first big pieces of machinery to be constructed in the new works.

Secretary Herbert of the navy has decided to give the name Ericcson to the torpedo boat No. 2, now under construction.

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UNITED STATES TREASURY DEPARTMENT, Steamboat Inspection Service, "The Maltby." Washington, D. C.

A Special Meeting of the Board of Supervising Inspectors will be held at Washington, D. C., on May 10th, 1893, to determine and prescribe the lights for "Barges and Canal Boats when in tow of steam-vessels," in accordance with the Act of Congress approved March 3d, 1893.

All persons interested are invited to present their views in writing to the Supervising Inspector-General, Steamboat Inspection Service. "The Maltby," Washington, D. C., also to appear before the Board in person when it meets if they desire to do so.

No other business will be transacted by the Board except that specially referred to in this advertisement. JAS. A. DUMONT, Supervising Inspector-General. 6-13-20-27-4

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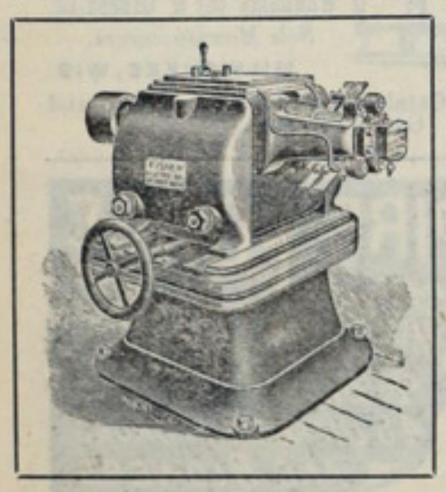

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Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind or wishing to purchase vessels, are invited to take advantage of the same offer. Employers in need of professional men or men who want positions may avail themselves of the opportunities offered. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 516 Perry-Payne Building, Cleveland, O.

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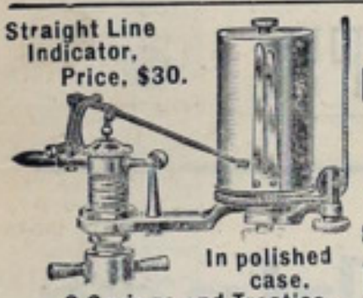

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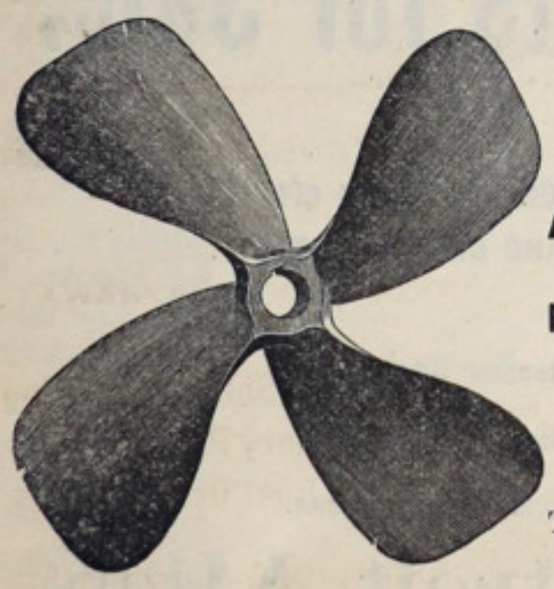

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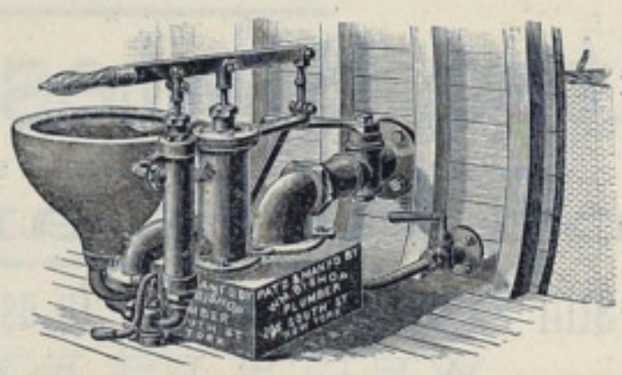

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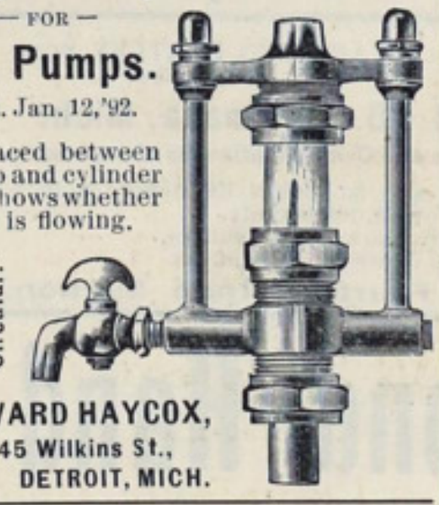

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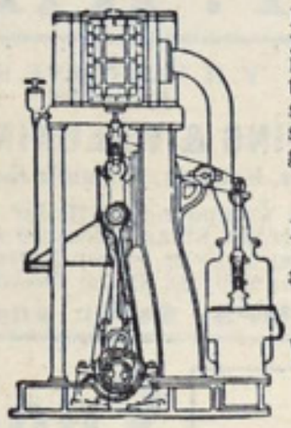

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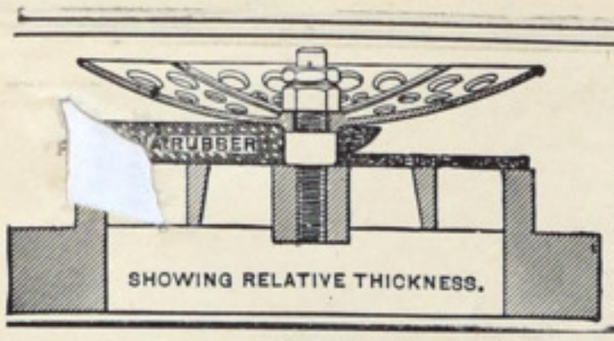

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OFFICE OF ENGINEER NINTH AND Eleventh Districts, Detroit, Mich., March 28, 1893, Proposals will be received at this office until 3 p. m. of Saturday, th 15th day of April, 1893, for furnishing 400 cords, more or less, of riprap stone, delivered in place aro nd the pier of Chicago Harbor Light Station, Ill. Specifications, forms of proposal, and other information may be obtained on application to this office. The right is reserved to reject any or all bids, and to waive any def cts. M B. ADAMS, Major of Engineers, U. S. A., Engineer 9th Light House District. 6-13

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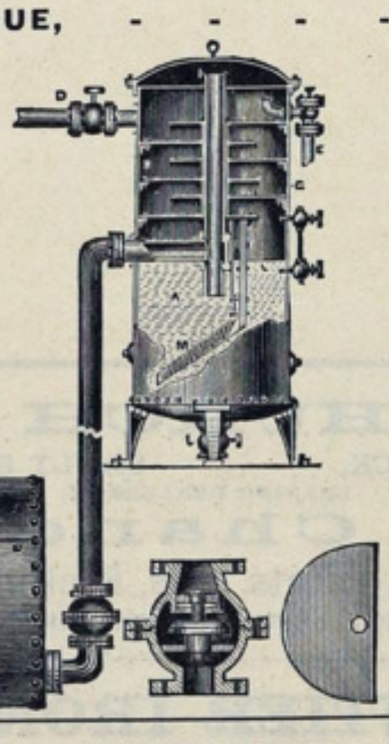

REFERENCES.
A.—Settling chamber.
B.—Boiler.
C.—Feed pipe to boil
D.—Steam pipe.
E.—Water supply pipe.
F.—Check valve.
G.—Spray disks.
H.—Spray chamber.
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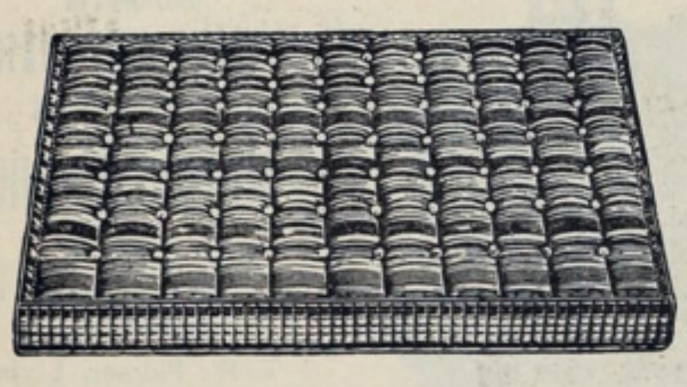

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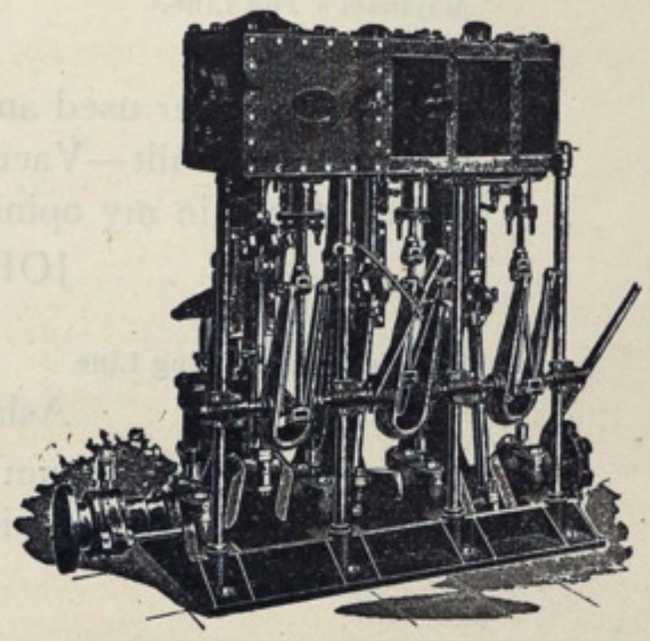

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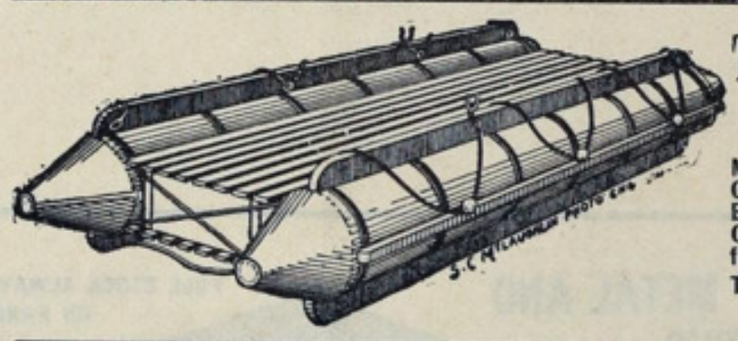

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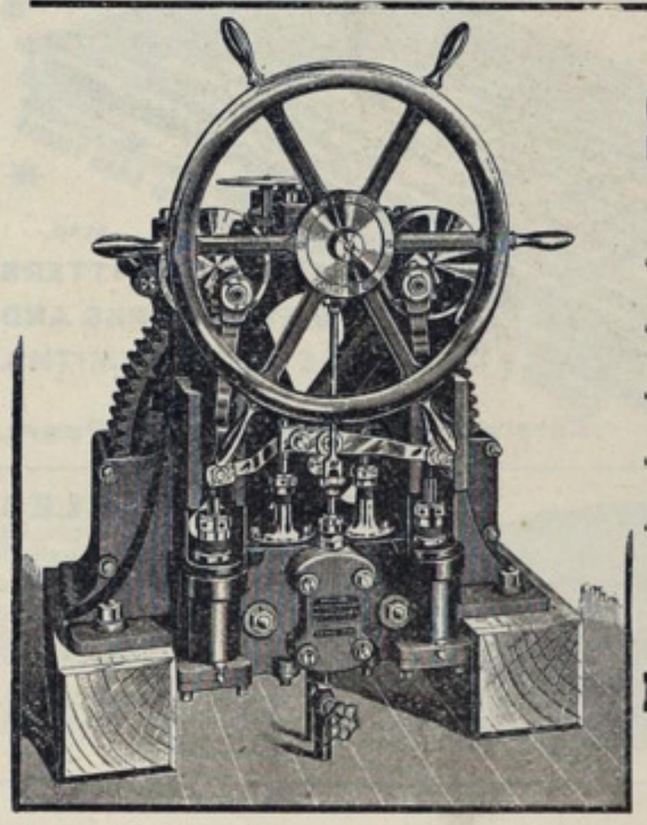

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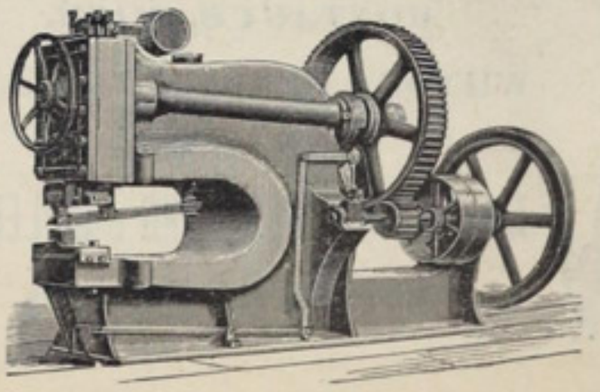

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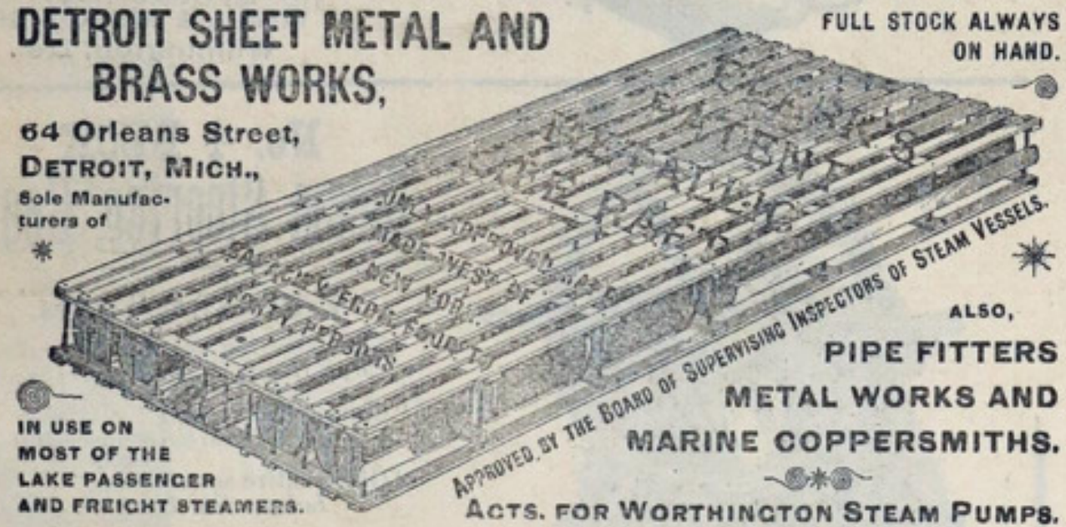

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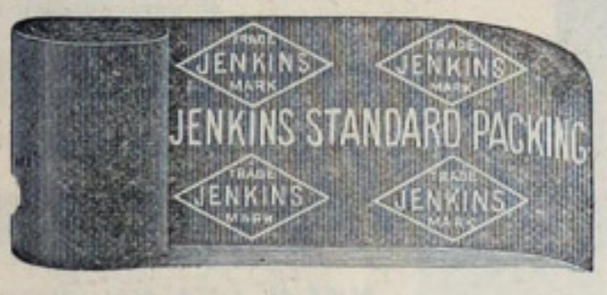

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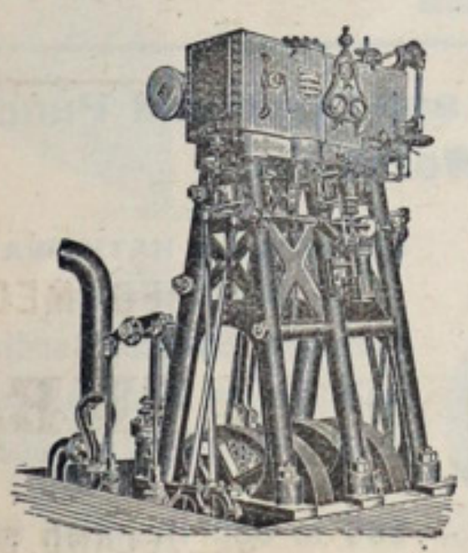

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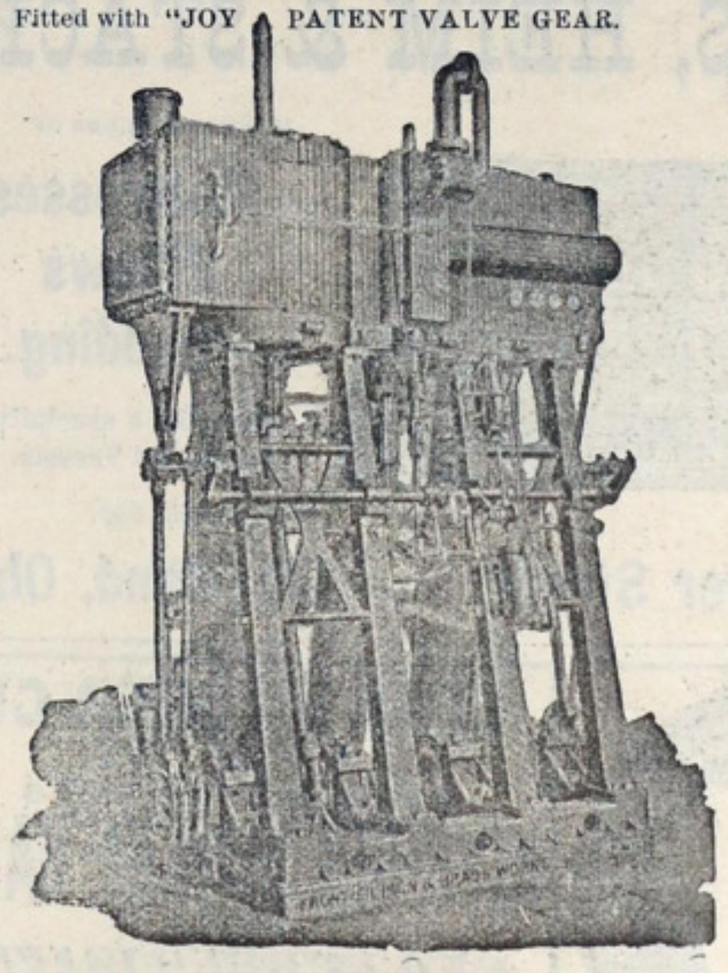

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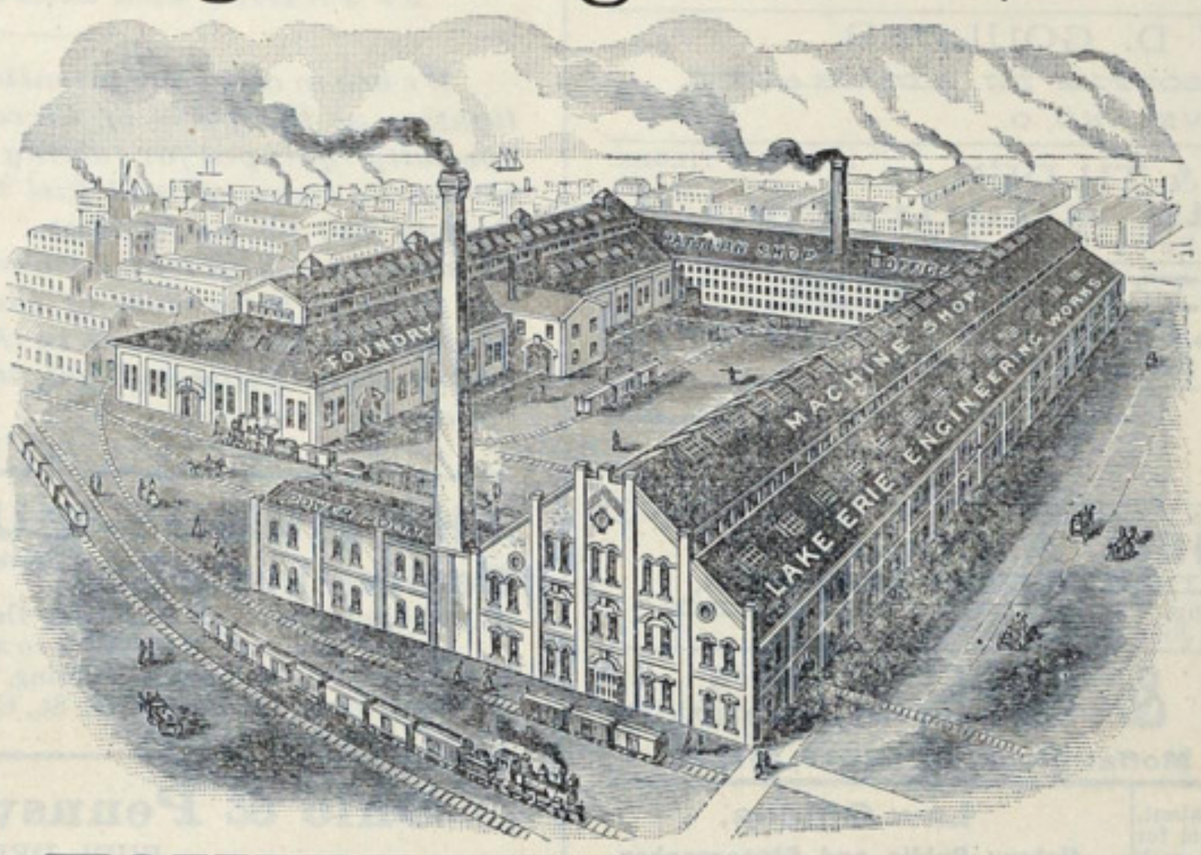

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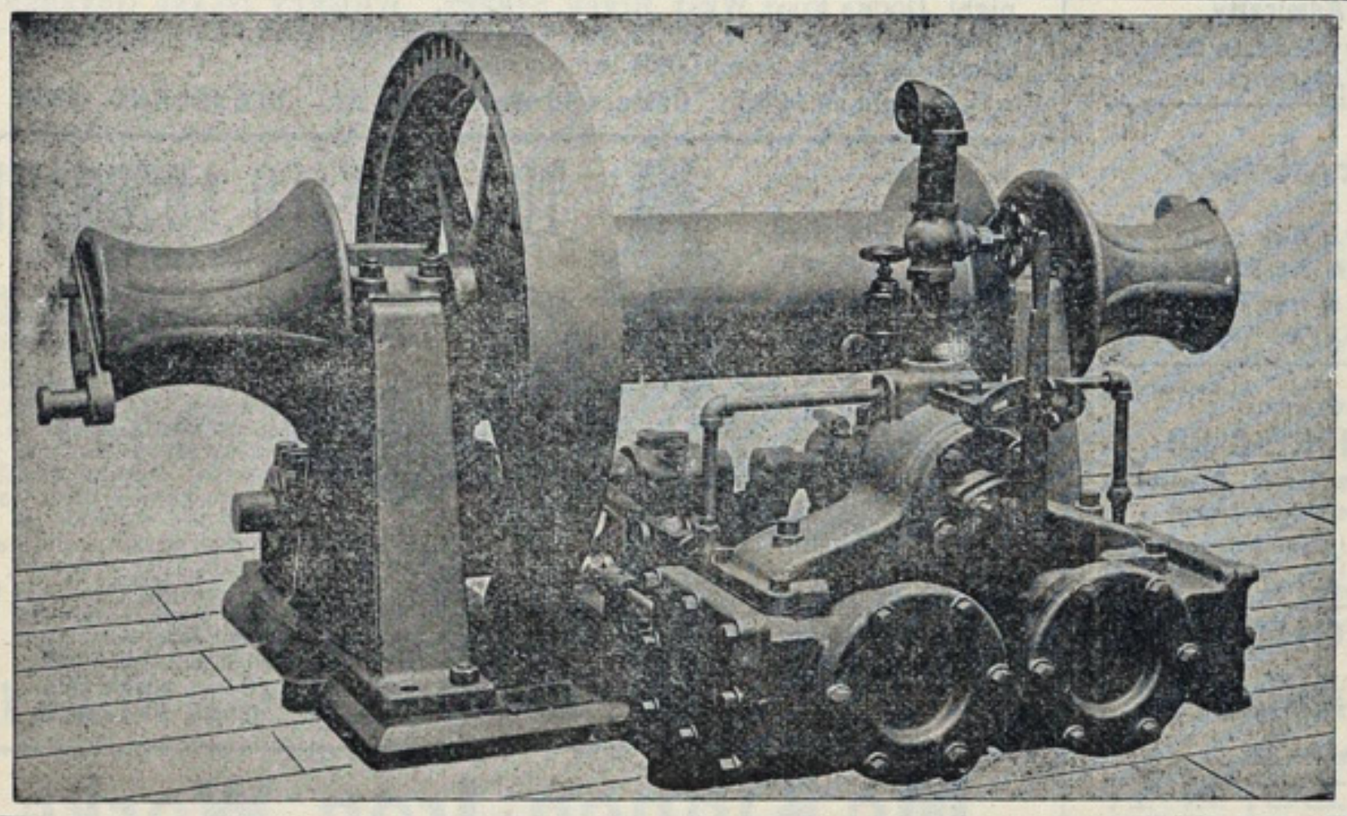

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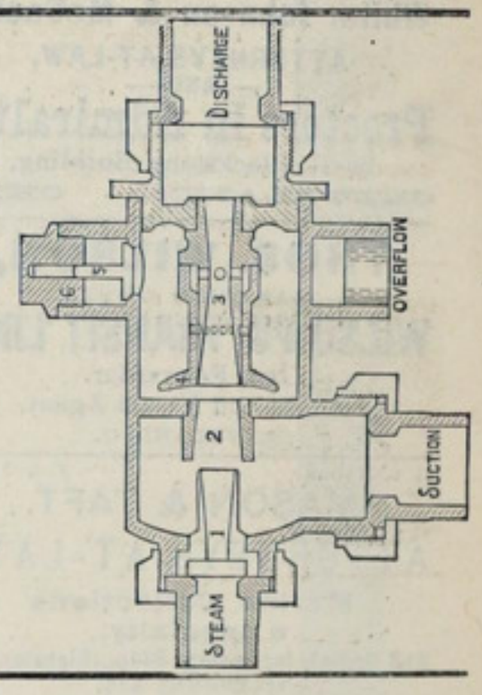

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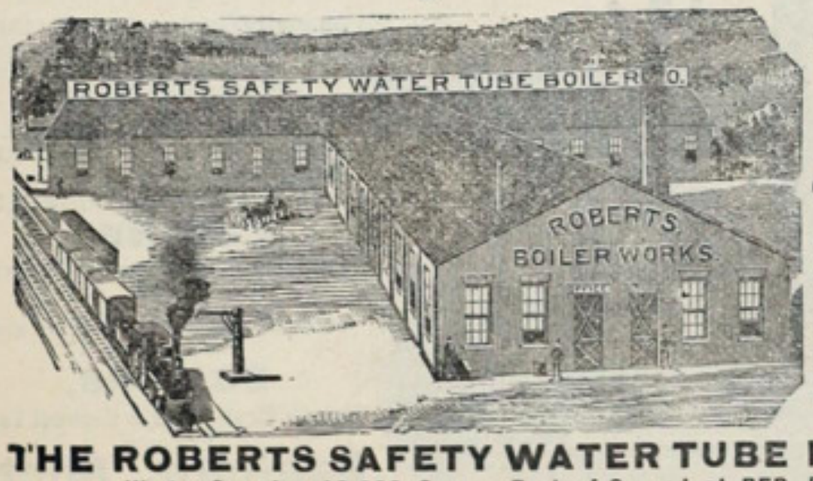

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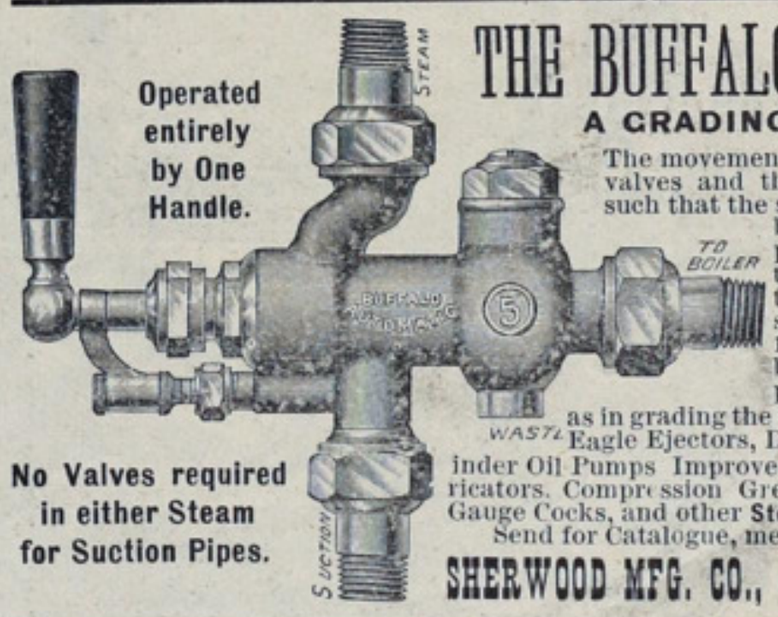

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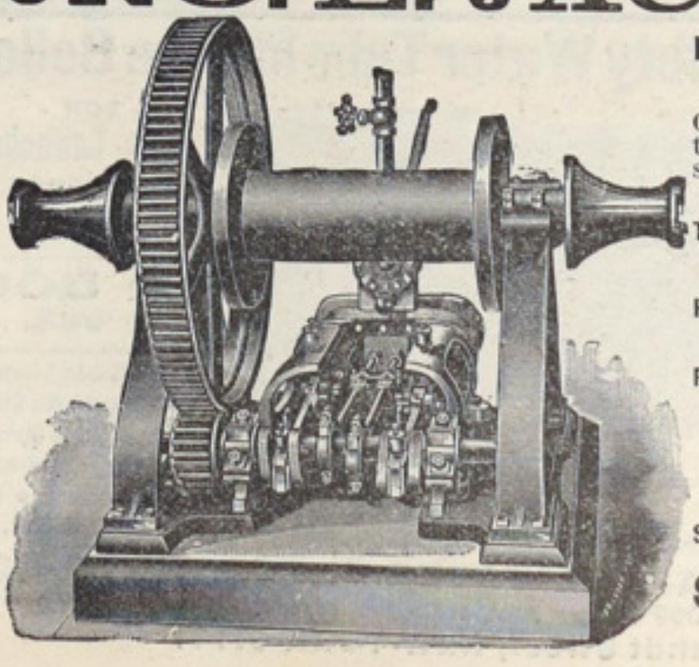

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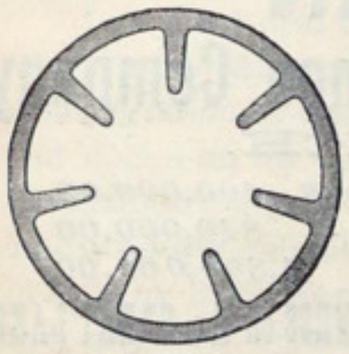

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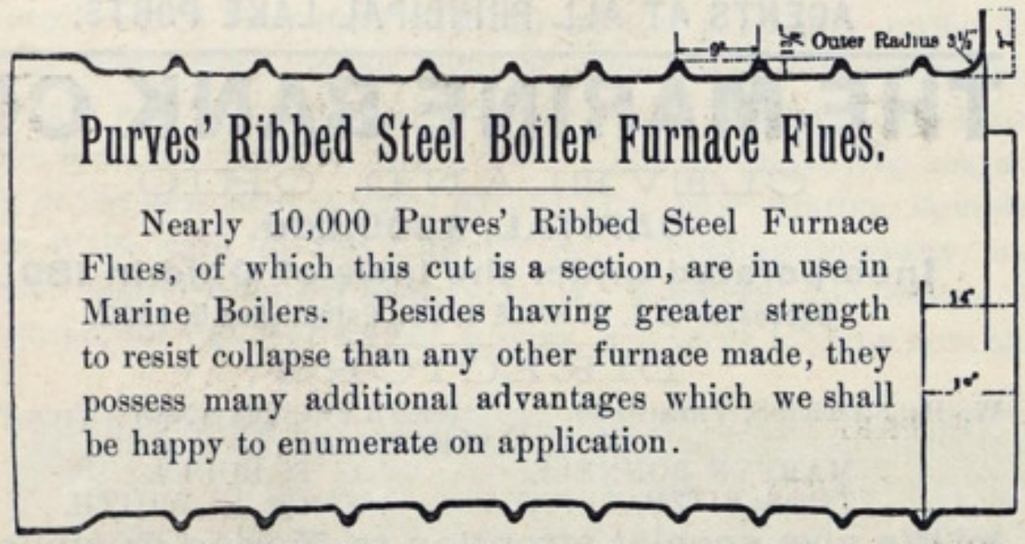

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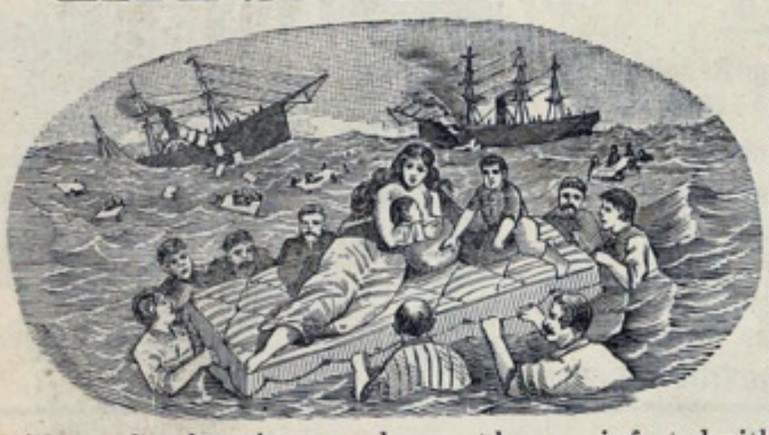

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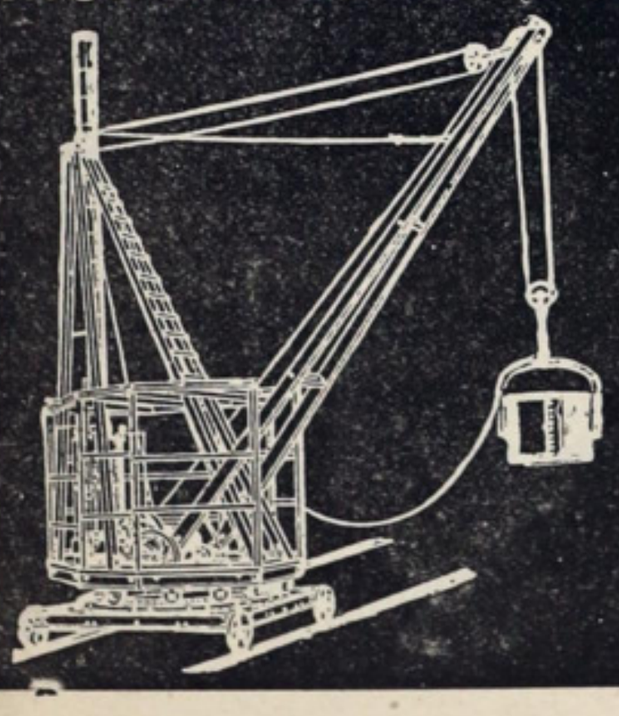

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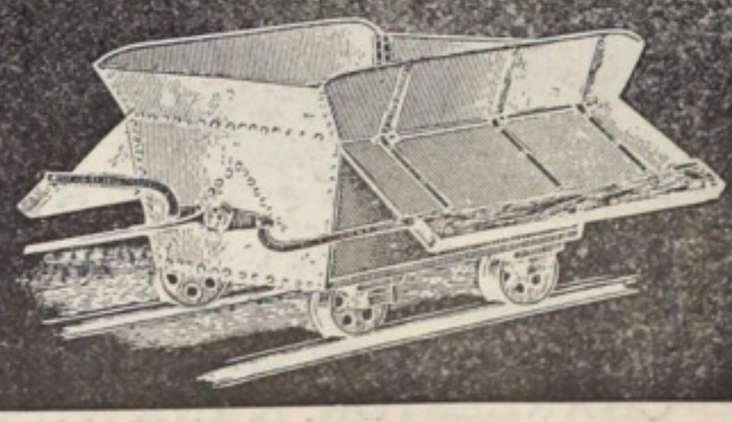

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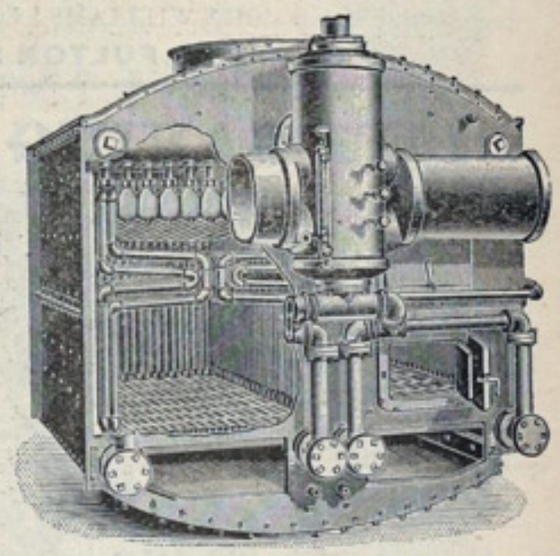

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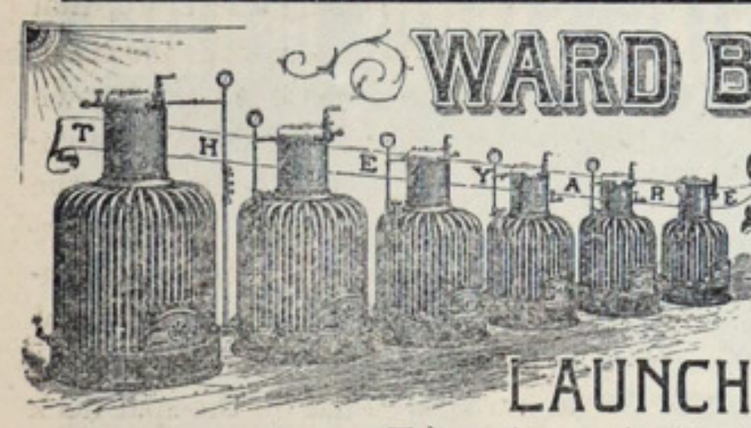

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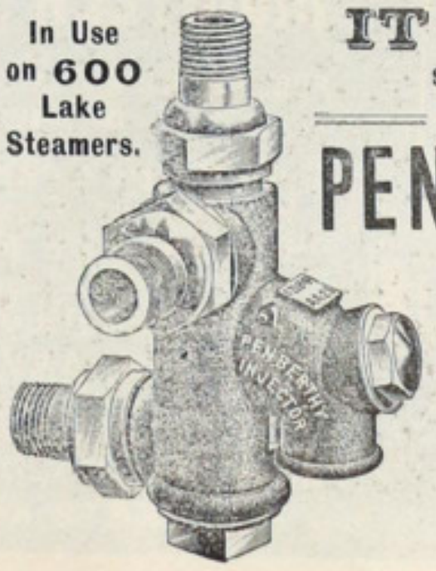

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